



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/521,563

08/01/2005

Detlef Knebel

0075/021001

2956

22893 7590 08/10/2007
SMITH PATENT OFFICE
1901 PENNSYLVANIA AVENUE N W
SUITE 901
WASHINGTON, DC 20006

EXAMINER

LOGIE, MICHAEL J

ART UNIT

PAPER NUMBER

2881

MAIL DATE

DELIVERY MODE

08/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,563

Applicant(s)

KNEBEL ET AL.

Examiner

Michael J. Logie

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 5 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/19/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Allowable Subject Matter

Claims 4 and 5 are allowed.

The following is an examiner's statement of reasons for the allowance:

In regards to claim 4, prior art fails to disclose the apparatus as claimed in claim 1, wherein the ionization unit has a laser, light beams which are indicated by the laser are focused off-axis and are then deflected by means of a mirror in an axial direction, with the mirror having an axial hole which allows the ions to pass through to the analysis unit.

In regards to claim 5, prior art fails to disclose the apparatus as claimed in claim 1, wherein the ionization unit has a laser, and light beams which are indicated by the laser are deflected by means of a mirror in an axial direction and are then focused by means of a focusing device, with the mirror and the focusing device each having an axial hole which allows the ions to pass through to the analysis unit.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 7-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishikawa (US patent no. 6,875,981).

In regards to claim 7, Nishikawa teaches a method for high-resolution examination of a measurement sample using a combined scanning probe microscope (figures 1 and 2), in particular a scanning force microscope, wherein the scanning probe microscope is first of all used to record an image of the measurement sample, in particular of the topography of the measurement sample (col. 5, lines 36-40), and wherein a mass spectrometer is then used for destructive, chemical characterization of at least subareas of sections of the measurement sample which are covered by the image (col. 7, lines 10-41).

In regards to claim 8, Nishikawa teaches the method as claimed in claim 7, wherein the selected areas are chosen successively such that the entire area imaged by the scanning probe microscope is analyzed, thus additionally resulting in a chemical image of the sample (col. 5, lines 5-43).

In regards to claim 9, Nishikawa teaches the method as claimed in claim 7, wherein further ablation of the measurement sample leads to high-resolution depth information (col. 5, lines 5-19 and col. 7, lines 56-64, note: figure 4a).

In regards to claim 10, Nishikawa teaches the method as claimed in claim 7, wherein the distance between two points for ionization can be chosen by analysis of the area ablated by an ionization process, such that this leads to uniform ablation of the measurement sample (col. 5, lines 5-43 and col. 6, lines 19-37).

In regards to claim 11, Nishikawa teaches the method as claimed in claim 7, wherein the information from scanning probe microscopy and from mass spectrometry can be compared with high lateral resolution (figure 4a and figure 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (US patent no. 6,875,981) and further in view of Yasutake (US patent no. 5,440,122).

In regards to claim 1, Nishikawa teaches an apparatus for a scanning microscope, in particular a scanning force microscope (figures 1 and 2), comprising a measurement probe (fig. 1, 5) which defines a near field (fig. 1, 5a), and having a

Art Unit: 2881

scanning unit (col. 5, lines 5-9), in conjunction with a mass spectrometer (fig. 1, 13) with an ionization unit (fig. 1, 7), an extraction unit (fig. 1, 10) and an analysis unit (col. 7, lines 15-18), wherein the measurement probe has a hollow tip (fig. 2, 5) so that the near field of the measurement probe can be used by the ionization unit in such a way that ions are formed only in the near field of the measurement probe (col. 6, lines 19-37: see figures 1 and 2), and the shape of the measurement probe allows an essentially axially symmetrical field distribution of the extraction unit with respect to the axis of the analysis unit (fig. 2, 8).

Nishikawa differs from the claimed invention by not disclosing having a scanning unit, which allows the measurement probe to move relative to a sample in all three spatial directions.

Yasutake teaches having a scanning unit, which allows the measurement probe to move relative to a sample in all three spatial directions (col. 3, lines 1-2).

Since both Yasutake and Nishikawa teach an apparatus for a scanning microscope, it would be obvious to one of ordinary skill in the art to combine having a scanning unit, which allows the measurement probe to move relative to a sample in all three spatial directions of Yasutake in the device of Nishikawa because having a scanning unit, which allows the measurement probe to move relative to a sample in all three spatial directions more precisely positions a sample to a probe for higher resolution topography.

In regards to claim 2, Nishikawa teaches wherein the measurement probe is a cantilever (fig. 1, 4).

In regards to claim 3, Nishikawa differs from the claimed invention by not disclosing wherein the sample can be moved in all three spatial directions by means of the scanning unit.

Yasutake teaches wherein the sample can be moved in all three spatial directions by means of the scanning unit (col. 3, lines 1-2).

Since both Yasutake and Nishikawa teach an apparatus for a scanning microscope, it would be obvious to one of ordinary skill in the art to combine wherein the sample can be moved in all three spatial directions by means of the scanning unit of Yasutake in the device of Nishikawa because the sample can be moved in all three spatial directions by means of the scanning unit more precisely positions a sample to a probe for higher resolution topography.

In regards to claim 6, Nishikawa teaches wherein the ionization unit has a laser (fig. 1, 7), and light beams (fig. 1, 7a), which are indicated by the laser, are passed to the measurement probe (fig. 1, 5) and cause ionization in the near field of the measurement probe by means of field amplification (col. 3, lines 25-40).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Logie whose telephone number is 571-270-1616. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2881

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ml

Michael Logu

8-1-2007


ROBERT KIM
SUPERVISORY PATENT EXAMINER